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CLAIMS

[Claim(s)]

[Claim 1]Float floated on a pool, and final controlling elements, such as a handle part which was able to provide a straight-line or curve top enabling free reciprocation moving, When it has a power transmission part which connects said float and said final controlling element of each other so that power transfer is possible, and a user applies power to said final controlling element and makes the final controlling element concerned move forwardly, While said float surfaces according to lift by some or the whole of said float in the state where it floated on a pool resisting lift, sinking underwater, and loosening power to said final controlling element, A training apparatus making as [return / to the original position / this is interlocked with, and said final controlling element carries out double action, and].

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the training apparatus using the lift of float (float) floated on the water surface in detail about a training apparatus.

[0002]With "training" here, muscular training for body building or lean figure, The aerobics aiming at the warm-up exercises in front of the rehabilitation (functional recovery movement, hyperergasia movement) after the illness for a physically handicapped person or an old person or an injury, underwater play, and a sport, a stretch and the arrangement gymnastics after a sport, an internal-organs function, breather hyperergasia, etc. are said.

[0003]

[Description of the Prior Art]As a conventional training apparatus, although the graphic display was omitted, there was equipment using the following weight which consists of metal, for example.

[0004]This equipment is installed on a floor and metal weight is supported by the device main frame so that up-and-down directional movement is possible. A user grasps by hand the handle part which it comes to connect with weight and an indirect target, and pulls this handle part. Thereby, weight can be pulled up and spends for load to an arm with a handle part at this time.

[0005]If the power of a hand with a handle part is extracted, or if a hand with a handle part is lifted, weight will fall with prudence and will return to the original position. By repeating such operation, the user can train an arm.

[0006]

[Problem to be solved by the invention]However, the conventional training apparatus had the following faults. That is, since the device main frame had to hold firmly the weight which consists of metal, the thick and heavy main part needed to constitute it. Therefore, when [at which the weight of the whole equipment becomes quite heavy, for example, this is assembled including weight] making it move at the time, it was forced very difficult work.

[0007]If it was while using the above-mentioned training apparatus, the monotonous and cold machine sound by metal and metal rubbing resounded, the user sensed mental stress by this, and it also became the cause of making training volition declining.

[0008][0008]. [this invention] -- do this invention in view of the above-mentioned actual condition -- it comes out. The purpose provides the training apparatus with an active and bright image which may accelerate **** and a user's training volition easily, also when [at which the purpose reduces the weight of the whole equipment, for example, this is assembled] making it move at the time.

[0009]

[Means for solving problem]Float with which the training apparatus of this invention is floated on a pool, and final controlling elements, such as a handle part which was able to provide the straight-line or curve top enabling free reciprocation moving, When it has a power transmission part which connects said float and said final controlling element of each other so that power transfer is possible, and a user applies power to said final controlling element and makes the final controlling element concerned move forwardly, Some or the whole of said float in the state where it floated on the pool resists lift, and sinks underwater, and while said float surfaces by loosening the power to said final controlling element according to lift, this is interlocked with and it makes as [return / final controlling element / to the original position / said final controlling element carries out double action, and].

[0010]

[Mode for carrying out the invention] All things with the character which lift tends to commit the above "float" by [, such as synthetic resin foam, such as a product made of rubber, an air bag made of a synthetic resin or a hollow vessel body, and foaming styrene, a piece of wood, etc. which filled up the inside with gases (air, nitrogen, etc.),] sinking, and is going to surface are said.

[0011] As form of float, a globular shape, cylindrical shape, tabular, the shape of an egg shape, conical shape, The shape of a polygonal-pyramid object, such as reverse conical shape, rectangular parallelepiped shape, a triangular pyramid, and a pyramid, the shape of a gourd type, What imitated popular characters, such as what a multiple column, the shape of a pillar by which bulged in the method of outside in the position, or reentrant formation was carried out, etc. were mentioned, and imitated goods, such as a ship and a car, a thing which imitated the animal, and comics, may be used.

[0012] If float is a thing of the pillar (a path is an eternal pillar in a sliding direction) prolonged in a sliding direction, are only that the ability which requires which portion in order that this float may be sunk, since it is [the capacity per unit height of this float and volume] very the same increases in a fixed quantity, but. Since it increases so that the capacity per unit height of this float and volume go upwards if it is when float is made into reverse conical shape, for example, the ability required in order to sink this float does not go to the reason for increasing in a fixed quantity, but increases rounded to it the 2nd order. Therefore, when float of reverse conical shape is used, such bigger load is applied compared with the case where the above mentioned pillar-shaped float thing is used that it goes in the second half. It is also possible to devise using such a principle, so that it can train efficiently.

[0013] That is, in the place of the operation which can be performed comparatively easily on the structure of the body in a series of a user's until it sinks float thoroughly operations, since it is easy to oppose big load, capacity of float corresponding to the portion and volume can be enlarged. On the contrary, what is necessary is just to make small capacity of float corresponding to the portion, and volume in the place of the operation which is comparatively hard to move, since it may be unable to oppose by small load, either.

[0014] Balloon type float with automatic buoyancy control equipment can also be used. That is, float which expansion (expansion) and reduction are possible and can moreover perform the air supply from the outside and the exhaust air to the exterior free can also be used. By using this float, float buoyancy control, i.e., regulation of the charge condition of load, can be performed, without carrying out exchange of float, and attachment and removal.

[0015] [Function] -- power is applied to the final controlling element provided enabling free reciprocation moving, and this final controlling element is made to move forwardly in the training apparatus of the present invention That is, or grasp a final controlling element, for example, a handle part, by hand, or it hangs a leg on a pedal part, it puts in power and it pushes, lengthens and raises this handle part or a pedal part, it lowers. This power gets across to float via a power transmission part, and this float resists lift and sinks underwater. Load takes for the arm which grasps this handle part, or the leg hung on the pedal part at this time.

[0016] If the quantity of the power applied to said final controlling element is reduced and it is made below the lift of float, float surfaces according to its lift, this is interlocked with, double action of the final controlling element will be carried out, and it will return to the original position.

[0017] If it is in the training apparatus of this invention, as mentioned above, since it generates when float resists lift and sinks, the thick and heavy main part which does not need to use the weight which consists of metal like before, and supports this is not required for the load to the body, either. For this reason, also when [which the weight of the whole equipment can be reduced, for example, assembles this] making it move at the time, it can carry out easily.

[0018] What is necessary is to increase the number of float or just to exchange for float with larger volume and capacity to enlarge load, for example, since the degree of load to the body is proportional to the lift of float and this lift is proportional to the volume of float, and capacity. On the contrary, what is necessary is to reduce the number of float or just to exchange for smaller float to make load small. Since there is none of so much weight in the float itself if it is in the equipment of this invention, attachment of the above float, and removal and exchange can be performed very easily.

[0019] If it is while using the above-mentioned training apparatus, the monotonous and cold machine sound which also became the cause of making training volition declining does not resound, and a user does not sense the mental stress by this. There is fun of ups and downs of float which was described above in the training apparatus of this invention, not to mention it, and a user is made to sense pleasure and ballottement. The training apparatus of this invention has an active

and bright image from a wave sound and a spray in case float bobs.

[0020]It differs from swimming training, hair does not get wet while in use, and it is not forced a swimming cap. Since a face does not get wet, in the case of especially a woman, there are also no worries about messy makeup.

[0021]In using the training apparatus of this invention, it is not asked whether the user can swim. That is, if the equipment of this invention is used, those who cannot swim can also enjoy underwater training.

[0022]Although the embodiments of this invention are enumerated below, this invention is not limited by this.

[0023][Embodiment 1] (a double leg extension, multi-hips)

a user -- a leg -- with, the pedal part which can operate it -- a sliding direction, a longitudinal direction, or a cross direction (the sliding direction on the circle in the case of carrying out both-way rotation of the predetermined angle a center [a specified position].) It is provided also including a longitudinal direction or a cross direction, enabling free reciprocation moving, and is a pulley (or turn component which has a slide curved surface.) from said pedal part to a downward position at least. It is the same as that of the following. While float is attached to the end of the coupling frame which it was provided, and the coupling frame of the shape of a wire, a form of a rope, or the shape of a chain (henceforth [it names generically and] "the shape of striatum") was imposed on said pulley, and was imposed on said pulley, After coming to attach the other end in said pedal part and installing underwater, or a user raises said pedal part on foot, make it move to a transverse direction (the direction of either right or left), or by making it move in the direction of either approximately, By pulling said float, sinking underwater and moving a leg to the original position, A training apparatus, wherein the tension from said pedal part was canceled and this makes said float as [return / to the original position / rise to surface according to lift, and said pedal part is pulled simultaneously with this by float which surfaces, and].

[0024][The embodiment 2] (arm extension)

A supporting spindle in which reciprocation moving is free is provided in a sliding direction (reciprocation moving of a sliding direction in a case of carrying out both-way rotation also contains a predetermined angle focusing on a position), It is formed directly or indirectly in said supporting spindle by float, and to said supporting spindle. After coming to provide a handle part which a user can grasp with one hand or both hands and installing underwater, by depressing said handle part underwater, A training apparatus making as [surface / according to lift / said float resisting lift, sinking in connection with this, and lifting a hand from said handle part, or by loosening power to depress / said float].

[0025][The embodiment 3] (straight arm rowing)

It is provided by control lever of both sides prolonged in a sliding direction at least at either a side, and said control lever, While having a handle part which a user can grasp with one hand or both hands in the upper part and being supported in the lower part, Both-way rotation (rocking) of a predetermined angle is attained centering on a support part in a cross direction or a longitudinal direction, A follower lever constituted so that it might extend ahead from said control lever or might rotate in the direction with both-way rotation of said control lever is provided, By extruding said handle part using a control lever being provided rotatable, after coming to connect float with said follower lever via direct or striatum-like coupling frame and installing underwater, A training apparatus made as [sink / said float is pulled caudad and / said follower lever rotates, and / by this, / float / underwater].

[0026][Embodiment 4]

upright rowing, double arm curl, and a shoulder press. The pulley of at least one SUKUATTO is attached and striatum-like coupling frame is imposed on said pulley, A training apparatus which float is attached in one end of the coupling frame imposed on said pulley, equips the other end with the handle part which a user can grasp with one hand or both hands, or the shoulder pat part which can be carried on a shoulder where a knee is bent, and is characterized by things.

[0027][Embodiment 5] (front pulldown, back pulldown)

At least two pulleys (the 1st pulley, the 2nd pulley) are attached, and striatum-like coupling frame is imposed on the 1st pulley, Float is attached in the free end section by the side of the end of the coupling frame imposed on said 1st pulley, A training apparatus characterized by coming to attach in the free end section the handle part which a user can grasp with one hand or both hands as for the other end side after being hung on other pulleys which contain the 2nd pulley at least one by one.

[0028][Embodiment 6] (a leg press, sprint kickback)

The chair for users is provided, and in the front position of said chair, while being supported in the upper part, the supporting spindle in which both-way rotation (rocking) of a predetermined angle is free is established forward and backward by making this part into a fulcrum, The pedal part which can be stepped on after the user who sat on said chair has bent the knee is provided in the lower part of said supporting spindle, and by this said pedal part, The supporting spindle for float which the reciprocation moving of becomes possible by expansion and contraction of a leg at a cross direction, and is prolonged toward back from said supporting spindle is established, After coming to attach float in said supporting spindle for float directly or indirectly and installing underwater, when a user steps on a pedal part and projects ahead, A training apparatus made as [sink / while said supporting spindle rotates, said supporting spindle for float rotates, and said float resists lift by this, and / underwater].

[0029]

[Working example]

A training apparatus (T) in which one working example of working-example 1 (a double leg extension, multi-hips) this invention is shown is explained based on drawing 1 and drawing 2.

[0030]In a figure, a mark (13) is a device main frame of hollow rectangular parallelepiped shape. A rear end part (if shown in a figure, it is a left edge part) of this device main frame (13) is equipped with a chair for users (12). In both sides, a grip hand (14) which a user grasps is provided in seat of this chair (12).

[0031]A supporting spindle (18) is attached to a cross direction center of a front end part in seat of a chair (12). this supporting spindle (18) -- before ** from an attaching position with a chair (12) -- it extends towards the bottom of slant a little, and centering on said attaching position (fulcrum (P)), a predetermined angle is provided in a sliding direction so that both-way rotation (rocking) is possible. A cylindrical pedal part (16) which a user who sat on a chair (12) can carry on a shell of both his legs is attached at a tip of this supporting spindle (18), Reciprocation moving of said pedal part (16) becomes free by rotation (rocking) of a supporting spindle (18) in a sliding direction (it is a sliding direction about a centering on said fulcrum (P) circle-correctly top).

[0032]The pulley is installed in the front end part and rear end part in an inside of the above mentioned device main frame (13), respectively (use the one distant from a chair (12) as the 1st pulley (22) hereafter, and let the direction near a chair (12) be the 2nd pulley (24)).

[0033]The coupling frame (26) which consists of ropes is provided in the above mentioned pedal part (16). From said pedal part (16), turn this coupling frame (26) caudad and it is prolonged, It goes into the inside of a device main frame (13) through the loading slot (33) established in the upper surface of the device main frame (13), It is halfway hung on the 2nd pulley (24) and the 1st pulley (22) one by one, it appears in the outside of a device main frame (13) via the after insertion port (35), and spherical float (10) is attached in the free end section.

[0034]The training apparatus (T) of the above-mentioned composition is installed in the floor pars basilaris ossis occipitalis (20) of a pool. The length of this coupling frame (26) is adjusted so that float (10) may float on the water surface, after coupling frame (26) has stretched at this time. The height of a chair (12) is adjusted so that it may not become the hindrance of breathing of a user. It is preferred to carry out height control so that the position of a user's heart may come out above the water surface.

[0035]A user sits on it, lengthening the back on a chair (12), and has a grip hand (14). And where upper (the root of digiti pedis is also included) pedal part (16) of the shell of its leg (both legs) is carried, this pedal part (16) is pulled up. Float (10) is pulled by this, lift is resisted, and it sinks underwater. Load will take for the leg (quadriceps (rectus femoris, the musculus vastus lateralis, musculus vastus intermedius, musculus vastus medialis), sartorius, kneecap muscle) which pulled up the pedal part (16) at this time.

[0036]A leg is taken down after raising a pedal part (16) even to a predetermined height. Thereby, the tension from a pedal part (16) is canceled and it rises to surface according to its lift, and simultaneously with this, a pedal part (16) is pulled by float (10) which surfaces, and descends, and float (10) returns to the original position. Taking up and down of a leg which was described above is repeated, and is performed.

[0037]In this example, the 1st pulley (22), the 2nd pulley (24), and coupling frame (26) constitute the power transmission part in Claims.

[0038]As shown in drawing 16, the change of design of the above-mentioned training apparatus (T) can also be carried out. That is, the chair for users (12) is provided in the backboard (13b) in the device main frame (13) which makes the shape of a side L character. A supporting spindle (18) is provided in the both sides part of a chair (12), respectively, enabling free rotation, and a pedal part

(16) is provided at the tip of each supporting spindle (18). Thereby, a pedal part (16) on either side can be moved individually. The pulley (a front side (front slanting lower part of a chair) is the 1st pulley (22), and the backside (lower part of a chair) is the 2nd pulley (24)) of the order lot is formed in the inside of a device main frame (13) in both sides, respectively.

[0039]The coupling frame (26) of the form of a rope is attached in each pedal part (16). The coupling frame (26) prolonged from a right-hand side pedal part (16), It goes into the inside of a device main frame (13) from the loading slot (33) which carries out an opening [near the 2nd pulley (24)], It progresses to the method of back to front [which was hung on the 2nd pulley (24)], after being hung on the 1st pulley (22), it appears from the insertion port (35) which carries out an opening [near this 1st pulley (22)] in the outside of a device main frame (13), and right-hand side float (10) is attached in the free end section.

[0040]The coupling frame (26) prolonged from a left-hand side pedal part (16) is the same, and it goes into the inside of a device main frame (13) from the loading slot (33) which carries out an opening [near the 2nd pulley (24)], It progresses to the method of back to front [which was hung on the 2nd pulley (24)], after being hung on the 1st pulley (22), it appears from the insertion port (35) which carries out an opening [near this 1st pulley (22)] in the outside of a device main frame (13), and left-hand side float (10) is attached in the free end section.

[0041]As shown in drawing 17, the change of design of the above-mentioned training apparatus (T) can also be carried out (multi-hips). That is, the fixed axis (31) prolonged toward the front from the front face of this protrudes on the backboard (13b) in the device main frame (13) which makes the shape of an L character. The supporting spindle (18) is attached to this fixed axis (31), enabling free rotation. Namely, the upper bed of a supporting spindle (18) is supported pivotably by the front end part (a free end section, a point) of a fixed axis (31), and both-way rotation (rocking) of a predetermined angle is free for a supporting spindle (18) to a cross direction focusing on a pivotable support position (fulcrum (P)) with a fixed axis (31).

[0042]The cylindrical pedal part (16) which a user is a leg, with can be operated is attached to the lower end part of a supporting spindle (18). Thereby, the reciprocation moving of a pedal part (16) becomes free about a centering on said fulcrum P circle top with rotation of a supporting spindle (18) at a cross direction.

[0043]The 1st pulley storage part (13-1a) is established in the front end part of the device main frame (13), and the 2nd pulley storage part (13-2a) is established in the flection in a device main frame (13). The pulley is attached to the inside of each pulley storage part.

[0044]The coupling frame which makes two forms of a rope is attached to the pedal part (16). One (26-1) of them is prolonged towards the 1st pulley storage part (13-1a), After going into the inside of this storage part (13-1a) and being hung on a pulley from a loading slot (33), it appears in the outside of this storage part (13-1a) via an insertion port (35), and float (10) is attached in the free end section.

[0045]One [remaining] (26-2) is prolonged towards the 2nd pulley storage part (13-2a), After going into the inside of this storage part (13-2a) and being hung on a pulley from a loading slot (33), turn the inside of a device main frame (13) ahead, and it progresses (turning to the 1st pulley storage part (13-1a)), After passing along the inside of this storage part, it appears in the outside of this storage part (13-1a) via another insertion port (35), and another float (10) is attached in the free end section.

[0046][0046]. ** and (14) are users'.

For balance [are a ** stick and] maintenance in use.

[0047]If it is in the above-mentioned training apparatus (T), after installing this in the bottom floor part of a pool, while a user stands on a device main frame (13), for example, making float (10) into right-hand side, the pedal part (16) of reliance is in the lateral surface of a left leg, and this left leg is flung up to the method of the outside. Thereby, a pedal part (16) moves back (direction with a backboard). When a pedal part (16) moves in the direction of a backboard, one of two coupling frames (26-1) is pulled, and float (10) connected with this sinks underwater.

[0048]If the direction to which a pedal part (16) is moved is made reverse (i.e., if a pedal part (16) is moved ahead (direction with float)), float (10) other than float (10) which could pull the coupling frame (26-2) of another side, and was connected with this and which sank in the above-mentioned underwater one will sink underwater.

[0049]The training apparatus (T) which is an working example besides the working example 2 (arm extension) is explained based on drawing 3 and drawing 4.

[0050]In a figure, a mark (12) is a chair for users. The footstep bar (28) on which the user who sat

on this chair (12) can hook a leg in the portion of a shell is provided in the lower part (leg) of this chair (12). The vertical lever (30) prolonged toward the upper part is being fixed to the seat of a chair (12). The rear end part of a supporting spindle (18) is supported pivotably by the upper bed (tip) of this vertical lever (30), and said supporting spindle (18) is established in the predetermined angle centering on this pivotable support part, enabling both-way free rotation (rocking). That is, the end of the users in the above mentioned supporting spindle (18) is attached to the upper bed (tip) of said vertical lever (30).

Thereby, the predetermined angle round trip rotation (rocking) to a sliding direction is free for a supporting spindle (18) in a centering on attaching position (fulcrum (P)) with the vertical lever (30) circle top.

[0051]The front end part (the attaching position with a vertical lever (30) is an end of an opposite hand) of a supporting spindle (18), The cylindrical handle part (16) which this user can grasp with one hand or both hands in a right lateral part being able to see from the user side who took down the waist to the chair (12) was installed, and, thereby, this handle part (16) is prolonged in the transverse direction (longitudinal direction) in the front of a chair (12). The horizontal axis for float wearing (19) is installed in the left lateral part of the front end part of a supporting spindle (18) by said handle part (16) and the same axle. Float (10) is held at this horizontal axis for float wearing (19).

[0052]The equipment (T) of the above-mentioned composition is installed in a pool bottom floor part (20). The height of a chair (12) is adjusted so that it may not become the hindrance of breathing of a user. It is preferred to carry out height control so that the position of a user's heart may come out above the water surface.

[0053]If it is in the above-mentioned equipment (T) installed in the pool bottom floor part (20), a handle part (16) is in the state where it floated on the water surface with float (10).

[0054]A user sits on it, lengthening the back on a chair (12), and hooks a leg on a footstep bar (28). And a handle part (16) is grasped by both hands or one hand, and a handle part (16) is caudad depressed using the supporting spindle (18) being established rotatable. Thereby, float (10) resists lift and sinks underwater. Load takes for the arm (triceps muscle of the arm (regions of back of an elbow and the upper arm)) which depressed the handle part (16) at this time.

[0055]Lifting a hand from said handle part (16), or by loosening the power to depress, it rises to surface according to its lift, a handle part (16) goes up simultaneously with this, and float (10) returns to the original position. Such operation is repeated and is performed.

[0056]In this example, the horizontal axis for supporting spindle (18) float wearing (19) constitutes the power transmission part in Claims.

[0057]The training apparatus (T) which is an working example besides the working example 3 (straight arm rowing) is explained based on drawing 5 and drawing 6.

[0058]In a figure, a mark (12) is a chair for users. The control lever (32) prolonged in a sliding direction is allotted to the right direction of a chair (12), and left each. In that lower end part, this control lever (32) is provided with the supporting shaft (34) respectively prolonged toward an inner direction, and is inserted in the pivotal support hole (36) established in the flank of the leg of the above-mentioned chair (12). Thereby, a control lever (32) on either side makes a fulcrum (P) the respectively above-mentioned pivotal support hole (36), and both-way rotation of a predetermined angle is free for it.

[0059]If he is a right hand if the user who sat on said chair (12) is in a right-hand side control lever, and he is in a left-hand side control lever, the handle part (16) which can be grasped with the left hand is provided in the upper part of the control lever (32), respectively. Thereby, the predetermined angle round trip rotation (rocking) of a handle part (16) is attained in a centering on said fulcrum (P) circle top with rotation of a control lever (32) at a cross direction.

[0060]A mark (38) is a follower lever. before ** [from / near the supporting shaft / in / in this follower lever (38) / a control lever (32) on either side / (34)] -- it has extended towards the slant top, respectively a little.

[0061]A mark (19) is a cylindrical horizontal axis for float, and a mark (26) is the coupling frame of the right and left which consist of ropes. Respectively, one end is attached to the point (upper bed part) of a follower lever (38), and, as for coupling frame (26), the other end is attached to the longitudinal direction center section of the horizontal axis for float (19). Float (10) which consists of some float constructs (10a) is held respectively at the horizontal axis for float of these right and left (19), enabling free attachment and detachment. That is, a float construct (10a) makes doughnut shape respectively, and the horizontal axis for float (19) is inserted in the hole which

consists in the radial-direction center section of this.

[0062]The equipment (T) of the above-mentioned composition is installed in a pool bottom floor part (20). The height of this chair (12) is adjusted so that it may not become the hindrance of breathing of a user. It is preferred to carry out height control so that the position of a user's heart may come out above the water surface.

[0063]If it is in the equipment (T) installed in the pool bottom floor part (20), float (10) is floating on the water surface in the forward left right both sides of a chair (12) together with the horizontal axis for float (19). Right and left have sunk thoroughly and the follower lever (38) has come out of the handle part (16) from the water surface.

[0064]A user sits on it first, lengthening the back on a chair (12). And a handle part (16) on either side is grasped, and a handle part (16) is ahead projected using the right-and-left control lever (32) being provided rotatable. Thereby, it rotates in a control lever (32) and the direction, and the attaching position of an on either side follower lever (38) with the coupling frame (26) in a follower lever (38) is depressed in a deeper position. In connection with this, float (10) on either side is pulled by coupling frame (26), resists lift, and sinks underwater, and load takes for the arm (a large and a pectoralis minor, a triceps muscle of the arm (upper arm part), trapezius, the public back (back), a teres muscle, and a deltoid muscle (shoulder)) etc. which projected the handle part (16) at this time.

[0065]Lifting a hand from a handle part (16), or by loosening the power to project, float (10) on either side surfaces according to its lift, a follower lever (38) on either side goes up simultaneously with this, and a handle part (16) on either side returns to the original position. It trains by repeating such operation. operation (projection) of a handle part (16) — right and left — it may carry out simultaneously — it may carry out and may carry out alternately with right and left.

[0066]The means of attachment of a control lever (32) can be changed, the direction to which the supporting shaft (34) specifically provided in the lower end part of the control lever (32) extends can be changed, and a handle part (16) can also be provided in the longitudinal direction instead of a cross direction so that reciprocation moving is possible.

[0067]Coupling frame (26) can be omitted and the horizontal axis for direct float (19) can also be attached at the tip of a follower lever (38). Float (10) can also be directly attached at the tip of a follower lever (38).

[0068]The power transmission part in Claims consists of a control lever (32), a follower lever (38), coupling frame (26), and a horizontal axis for float (19) in this example.

[0069]As shown in drawing 18, the change of design of the above-mentioned equipment (T) can also be carried out. That is, a chair (12) is provided in the backboard (13b) of the device main frame (13) which makes the shape of an L character. The horizontal axis for float in the above-mentioned working example (19) is omitted, and direct and spherical float (10) is attached in the free end section of the coupling frame (26) prolonged from the tip (upper end) of a follower lever (38).

[0070]The training apparatus (T) which is an working example besides working-example 4-a (upright rowing, double arm curl, SUKUUTTO) is explained based on drawing 7, drawing 8, and drawing 9.

[0071]In a figure, a mark (13) is a device main frame which makes tabular. The device main frame (13) is provided with the pulley storage part (13a) which makes the shape of a hollow hemisphere. The pulley (22) is attached to the inside of this pulley storage part (13a).

[0072]Wire-like coupling frame (26) is imposed on the pulley (22). One end side of the coupling frame (26) imposed on the pulley (22) comes out from a pulley storage part (13a) via a loading slot (33), and the handle part (16) which a user can grasp with one hand or both hands is attached to the free end section.

As for the other end side, it comes out from a pulley storage part (13a) via an insertion port (35), and spherical float (10) is attached to the free end section.

[0073]The device main frame (13) in the equipment (T) of the above-mentioned composition is installed in a pool bottom floor part (22). In this state, a user stands on a device main frame (13) (portions other than a pulley storage part (13a)), using a front [float / said / (10)]. If it is in the equipment (T) installed in the pool bottom floor part (22), after coupling frame (26) has stretched, float (10) is appearing the water surface top of a pool.

[0074]A user grasps a handle part (16) by hand, and pulls up this. ([Upright rowing] (drawing 8) linearly pulled up so that the fist which bends an elbow from the state which lengthened the arm, projects the elbow to the side, and grasps a handle part (16) may come immediately under a jaw.)

Or turn the inside of an arm to float (10) and it has a handle part (16). A handle part (16) is drawn near and raised so that the fist which an upper arm part leaves as it is from the state which lengthened the arm, and grasps a handle part (16) may draw a circle focusing on an elbow [double arm curl] (drawing 9). By this, Float (10) resists lift, and sinks underwater and load takes for an arm (upright rowing: trapezius, a deltoid muscle, a rhomboideus muscle, a triceps-muscle-of-the-arm holdfast) ((double-arm curl: musculus-biceps-brachii and musculus-brachialis)) with a handle part (16) at this time.

[0075]By loosening the power of lifting a hand from a handle part (16), or pulling up a handle part (16), float (10) surfaces with its lift and a handle part (16) returns to the original position.

[0076]The power transmission part in Claims consists of coupling frame (26) and a pulley (22) in this example.

[0077]As shown in drawing 19, the change of design of the above-mentioned training apparatus (T) can also be carried out so that it may be **** with the state where it sat on the chair. That is, the chair (12) is provided in the backboard (13b) in the device main frame (13) which makes the shape of an L character. The pulley storage part (13a) is established in the front end part of the device main frame (13). The pulley (22) is attached to the both sides part in the inside of a pulley storage part (13a), respectively. The end [in / steadily / the coupling frame (26) which the coupling frame (26) of the form of a rope is imposed on each pulley (22), respectively, and was imposed on the pulley (22)] side, It comes out outside from the inside of a device main frame (13) via the loading slot (33) provided near the pulley (22) in a device main frame (13), and the handle part (16) which the user who sat on said chair (12) in the end can grasp by hand is attached. The end side of another side comes out outside from the inside of a device main frame (13) via the insertion port (35) provided near the pulley (22) in a device main frame (13), and spherical float (10) is attached in the end.

[0078]As shown in drawing 20, a change of design can also be carried out (SUKUUATTO). That is, while it is mutually parallel to the backboard (13b) in the device main frame (13) which makes the shape of an L character, two long grooves (13c) which extend in a sliding direction respectively are provided. The shoulder pat part (16) is provided in each long groove (13c). Namely, the part is inserted in the inside of a long groove (13c), each shoulder pat part (16) considers the long groove (13c) as a guide, and reciprocation moving is possible for it to a sliding direction.

[0079]The pulley storage part (13a) is established in the front end part of the device main frame (13). The pulley (22) is attached to the both sides part in the inside of a pulley storage part (13a), respectively. The coupling frame (26) of the form of a rope is imposed on each pulley (22), respectively. It appears in the outside of a device main frame (13) via the insertion port (35) in the coupling frame (26) imposed on the pulley (22) in which while was provided near this pulley (22) as for the end side, and spherical float (10) is attached in the end. The end side of another side passed along the inside of a device main frame (13), and it is connected with the shoulder pat part (16), without coming out outside also at once via a flection.

[0080]In the state where the above-mentioned equipment (T) was installed in a floor pars basilaris ossis occipitalis of a pool, the length of coupling frame (26), etc. are adjusted so that a shoulder pat part (16) may be allotted to a position which can be carried on a shoulder after a user has bent a knee. And a shoulder pat part (16) is raised by a user's carrying a shoulder pat part (16) on a shoulder, and extending a knee which was being bent.

[0081]A training apparatus (T) which is an working example besides working-example 4-b (shoulder press) is explained based on drawing 10 and drawing 11.

[0082]In a figure, a mark (13) is a device main frame which makes tabular. A base material (40) of a right-and-left couple respectively prolonged in a sliding direction is formed in this device main frame (13). A base material (40) makes the shape of a hollow cylinder, and the lower part in each inside is equipped with a pulley (22). moreover -- setting to a base material (40) at an upper bed -- the 1st insertion hole (42) -- said pulley (22) -- in an upper position, the 2nd insertion hole (44) is provided a little, respectively.

[0083]Float (10) is held at the base material (40) on either side, respectively. That is, float (10) makes doughnut shape and the base material (40) is inserted in the insert hole (10a) which consists in a radial-direction center section.

[0084]The coupling frame (26) of the form of a rope is imposed on the pulley (22). One end side of the coupling frame (26) imposed on the pulley (22) passes along the inside of a base material (40), appears from the 1st insertion hole (42) in the outside of a base material (40), and is attached to the end of one cylindrical handle part (16) to which the free end section extends in a longitudinal direction. That is, the free end section of right-hand side coupling frame (26) is attached to the

right end section of a handle part (16), and the free end section of left-hand side coupling frame (26) is attached to the left edge part of a handle part (16). As for the end side of another side of the coupling frame (26) imposed on the pulley (22), after appearing in the outside of a base material (40) through the 2nd insertion hole (44) of a base material (40), the free end section is attached to float (10).

[0085]The equipment (T) of the above-mentioned composition is installed on a pool floor pars basilaris ossis occipitalis (20). The upper part of the base material (40) of the equipment (T) in this state has come out from the water surface, and float (10) is floating on the water surface in the state where it was held at said base material (40). The handle part (16) appears on the base material (40) on either side, after it turned caudad and having been pulled by float (10).

[0086]A user uses a front [handle part / (16)], and he stands on a device main frame (13), straightening the back, and a breadth-of-its-shoulders grade extends both hands, and he grasps a handle part (16). And a handle part (16) is raised. Float (10) pulled by the handle part (16) via coupling frame (26) shifts under the water surface, resisting lift and being guided to a base material (40). Load will take for the arm (a deltoid muscle, a triceps muscle of the arm) etc. which raised the handle part (16) at this time.

[0087]By taking down a handle part (16), float (10) surfaces according to lift and this handle ** (16) and float (10) return to the original position. It trains by repeating taking up and down of such a handle part (16).

[0088]The power transmission part in Claims consists of coupling frame (26) and a pulley (22) in this example.

[0089]The training apparatus (T) which is an working example besides the working example 5 (front pulldown, back pulldown) is explained based on drawing 12 and drawing 13.

[0090]In a figure, a mark (13) is a device main frame which makes tabular. This device main frame (13) is provided with the hollow hemisphere-like pulley storage part (13a). The 1st pulley (22) is attached to the inside of this pulley storage part (13a).

[0091]On the device main frame (13), the pillar-shaped base material (40) prolonged toward the upper part in the back of a chair (12) and this chair (12) is formed.

[0092]The lobe (40a) prolonged toward the front is installed in the upper part of a base material (40), and the 2nd pulley (24) is formed in the position corresponding right above said chair (12) in this lobe (40a).

[0093]The coupling frame (26) of the form of a rope is imposed on the 1st pulley (22). As for the one end part side of the coupling frame (26) imposed on the 1st pulley (22), it appears in the outside of a pulley storage part (13a) via an insertion port (35), and float (10) is attached to the free end section. The other end side comes out from a pulley storage part (13a) via a loading slot (33), after being hung on the 2nd pulley (24) after that, direction is changed caudad, and the handle part (16) which makes the rod form prolonged in the longitudinal direction is attached to the free end section.

[0094]The equipment (T) of the above-mentioned composition is installed in a pool floor pars basilaris ossis occipitalis (20). At this time, the handle part (16) adjusts the length of coupling frame (26) beforehand so that the user who sat on the chair (12) may lengthen both arms up and may be allotted to the position arriving (BANZAI), so that float (10) may float on the water surface, after coupling frame (26) has stretched. The height of a chair (12) is adjusted so that it may not become the hindrance of breathing of a user. It is preferred to carry out height control so that the position of a user's heart may come out above the water surface.

[0095]A user lengthens the back straightly, sits on a chair (12), lengthens both arms, and grasps both ends of a handle part (16). Then, a handle part (16) is pulled down to a hit of a breast (front pulldown). Or a handle part (16) is pulled down even after a head through regio occipitalis capitis (back pulldown).

[0096]use any -- by pulling down a handle part (16), float (10) resists lift and sinks underwater. Load will take for an arm (latissimus dorse (back), trapezius (height), a large and teres minor muscle (shoulder), a rhomboideus muscle (back), a deltoid muscle (shoulder), musculus biceps brachii and musculus brachialis, a triceps muscle of the arm, a large and a pectoralis minor (breast)) etc. which pull down a handle part (16) at this time.

[0097]By loosening power which detaches a handle part (16) or is pulled down, it rises to surface according to lift, a handle part (16) goes up simultaneously with this, and float (10) returns to the original position. It trains by repeating such operation.

[0098]A power transmission part in Claims consists of coupling frame (26), the 1st pulley (22), and the 2nd pulley (24) in this example.

[0099]As shown in drawing 21, the change of design of the above-mentioned training apparatus (T) can be carried out. That is, a pulley storage part (13a) is established in a front end part of a device main frame (13) which makes the shape of an L character. The 1st pulley (22) is attached to a both sides part in an inside of a pulley storage part (13a), respectively. The 2nd pulley (not shown) per right and left is attached to an inside of a flecion of a device main frame (13).

[0100]The guide pipe (13c) is prolonged, respectively from each of both sides in the upper bed part of the backboard (13b) of a device main frame (13). After each guide pipe (13c) is prolonged toward a straight top from a backboard (13b), it curves halfway, direction is changed into the front and cross direction center side, two guide pipes (13c) are connected right above [of the position where a user stands / abbreviated], and the opening (13d) of it is placed upside down in the part concerned.

[0101]A mark (16) is a handle part which the user who stands on a device main frame (13) can grasp by hand. The coupling frame (26) of two forms of a rope is attached to the longitudinal direction center section of this handle part (16).

[0102]From the aforementioned opening (13d), one coupling frame (26) passes along the inside of a backboard (13b), after passing along one inside of the two guide pipes (13c), After being hung on the 2nd pulley formed in the inside of the flecion in a device main frame (13), it progressed towards the pulley storage-part (13a) side, was hung on the 1st pulley (22), and has come out outside from the device main frame (13) via the insertion port (35) after that. And spherical float (10) is attached in the free end section.

[0103]The coupling frame (26) of another side is the same, and after it passes along the inside of a backboard (13b) after passing along the inside of the guide pipe (13c) of another side, and being hung on the 2nd pulley from the aforementioned opening (13d), it was hung on the 1st pulley (22) and has come out outside from the device main frame after that. And spherical float (10) is attached in the free end section.

[0104]The training apparatus (T) which is an working example besides the working example 6 (a leg press, sprint kickback) is explained based on drawing 14.

[0105]In a figure, a mark (13) is a device main frame which makes triangular frame shape, and a mark (12) is a chair for users which it comes to connect with a device main frame (13) in one (joint structure is un-illustrating).

[0106]a device main frame -- (-- 13 --) -- a crowning -- **** -- a chair -- (-- 12 --) -- a front -- a longitudinal direction -- extending -- a principal axis -- (-- 44 --) -- an axis -- a center -- having carried out -- right -- reverse (original and copy) -- rotation -- free -- providing -- having -- **** . Three components explained below are provided in this principal axis (44).

[0107]One is a supporting spindle for auxiliary float (46). this supporting spindle (46) -- before ** from said principal axis (44) -- it extends toward the bottom of slant a little, and auxiliary float (11) is attached at that tip.

[0108]Other one is a supporting spindle for main floats (48). This supporting spindle (48) is prolonged toward back through the side of a chair (12) from said principal axis (44), and the main float (10) is attached at that tip.

[0109][0109, one of the ** is Sasae for pedals.

it is 8) -- after ** from a principal axis (44) -- a little -- the bottom of slant -- ** -- and . The pedal part (16) is provided at the tip of this supporting spindle (18).

[0110]The three above-mentioned components (46), i.e., the supporting spindle for auxiliary float, the supporting spindle for main floats (48), and the supporting spindle for pedals (18) rotate the direction and the degree of isogonism with rotation of for [of a principal axis (44)] Masakata, or an opposite direction.

[0111]The equipment (T) of the above-mentioned composition is installed in a pool bottom floor part (20). The height of this chair (12) is adjusted so that it may not become the hindrance of breathing of a user. It is preferred to carry out height control so that the position of a user's heart may come out above the water surface. If it is in the state where equipment (T) was installed in the pool bottom floor part (20), the main float (10) is floating on the water surface, and a pedal part (16) is allotted to the position which can be stepped on after the user who sat on said chair (12) has bent the knee.

[0112]A user sits on a chair (12), lengthening the back straightly, and where a knee is bent, he steps on a pedal part (16).

[0113]In this state, a leg is projected ahead and a pedal part (16) is extruded on foot (leg press). Thereby, a principal axis (44) rotates and the supporting spindle for main floats (48) rotates in the direction in connection with this. The main float (10) attached at the tip of a supporting spindle

(48) resists lift simultaneously, and it sinks underwater. Load will take for the leg (yes quadriceps, the musculus psoas major, ****, a sit-up, a soleus muscle, the Achilles sources, an ankle, the muscles of others required for the pliability of a leg) etc. which extrude a pedal part (16) at this time.

[0114]By lengthening the projected leg to the front, it rises to surface according to lift, a principal axis (44) rotates reversely simultaneously, a pedal part (16) moves to the user side, and float (10) returns to the original position. Since the supporting spindle for auxiliary float (40) rotates, auxiliary float (11) resists lift at this time and it sinks underwater, Even if it lengthens the projected leg to the front, rapidly, it does not rise to surface, namely, a pedal part (16) does not return to the original position quickly, and the main float (10) can avoid a risk of producing, when a pedal part (16) moves toward a user rapidly.

[0115]By forming auxiliary float (11), power applies in a series of a user's until it sinks a main float's (10)'s thoroughly operations, and condition can be adjusted. That is, when extruding a pedal part (16) on foot, the lift by auxiliary float (11) consisting underwater the start of aggressiveness can be borrowed. Therefore, a pedal part (16) can be extruded comparatively comfortably. From the time of a pedal part (16) being extruded further and auxiliary float (11) coming out from the water surface, the lift of auxiliary float (11) serves as zero, that is, serves as only load of a main float (10), and requires bigger load for a leg.

[0116]It is visually significant by forming auxiliary float (11) in a user's front. That is, as mentioned above, since the main float (10) is allotted behind the user, a user cannot see the ups and downs of what hears the wave sound by a main float (10) floating and sinking itself. However, since auxiliary float (11) is arranged before the user instead of the main float (10), the pleasure of ups and downs of this auxiliary float (11) and fun can be enjoyed fully.

[0117]It trains by repeating aggressiveness length of such a pedal part (16).

[0118]The training apparatus (T) of the above-mentioned composition can also be used as follows (refer to drawing 15). That is, first, a user stands in the front position of a chair (12), using a front [main float / (10)], and grasps the side part of a chair (12). A leaning posture is taken in this state (being in a proneness state a little), a knee is bent, and a pedal part (16) is stepped on. Then, a pedal part (16) is extruded by projecting a leg.

[0119]A power transmission part in Claims consists of a principal axis (44), a supporting spindle for main floats (48), and a supporting spindle for pedals (16) in the above-mentioned working example.

[0120>About a training apparatus (T) shown in the above-mentioned working example, and a training apparatus (T) shown especially in the working examples other than an working example 2 (arm extension), Float (10) is floated on a pool, and it can also be constituted so that a user may train, for example on the poolside (land).

[0121]If it is in an working example using one float (10), it may replace with this and you may constitute from two or more float constructs. And according to a user's capability, the number can be changed suitably and can also be used. Conversely, when float (10) is constituted by two or more float constructs, this can also be set to one.

[0122]It can also be considered as one piece of equipment combining more than two or it of each training apparatus explained in the above.

[0123]The following explanation is added about a case where a user goes underwater and it trains. That is, when training above the floor level (land) is compared with underwater training and load of the same weight is received, a burden to a part and the waist to which lift requires an underwater direction for a user's body is eased.

[0124] Below the reference example 1 (Quick Rheydt and kick) explains a reference example based on drawing 22 and drawing 23.

[0125]As shown in a figure, water is prescribed depth ON ***** to a pool. This pool spreads out, when a part of internal surface of this pool bulges in the shape of a flat-surface circle towards the method of outside.

[0126]it extends in a diametral direction at said pool bulged part (50) carried out -- it is caught and the stick (52) is constructed [above the water surface]. As for two rows of upper and lower sides, inside the wall surface (50a) in a pool bulged part (50), the crevice for light storage (54) is provided for every hoop direction predetermined interval. One light (56) is stored by one crevice for light storage (54), and the light (56) of these plurality is programmed to switch on the light to every one and random with the lighting signal from the outside.

[0127]It is blockaded by the touch sensor component (58) and the front side opening of the crevice for light storage (54) can recognize blink of said light (56) now from the outside via this touch sensor component (58). And if the touch sensor component (58) which the light (56) turned

on is touched, a light (56) goes out and it has become the structure which the following light (56) turns on.

[0128]He stands a user being caught and making it a front [bulged part / pool / a stick (52) and / (50)], is caught and grasps a stick (52) with both hands. A leg (lower half of the body) is floated using lift, a leg is projected, and a tiptoe is applied to a wall.

[0129]Lighting of a light (56) is started in this state. That is, the machine side makes one random, arbitrarily selected light (56) turn on. If the turned-on light (56) is found, a user will touch the touch sensor component (58) in the position on the tiptoes of a leg, and will erase the turned-on light (56). It competes for the ability to be erased [how many lights (56)] in predetermined time.

[0130]Although reference example 2 (water Tarzan) graphic display is omitted, **** constructed over a pool so that water may stand in a row to a prescribed depth ON ***** cage and this pool and this bar may arrange the bar of a predetermined number in parallel in one way is provided.

[0131]A user moves to one end besides **, first changing one bar after another which hangs, falls in the bar by the side of an end, and hangs and falls in it.

[0132]Below the reference example 3 (hips flexor) explains a reference example based on drawing 24.

[0133]As shown in a figure, water is prescribed depth ON ***** to a pool. A back pad (60) which consists of buffers is provided in height (depth) equivalent to a user's lumbar part in an internal surface of a pool which stands on a pool bottom floor part (20).

[0134]From a pool wall surface equivalent to both sides of a back pad (60), an arm pad (62) projects, respectively and a handle bar (64) prolonged toward the upper part, respectively is installed in a projecting end part (62a) of these arm pads (62).

[0135]a user stands on a pool bottom floor part (20), putting in the body between arm pads (62) on either side, where a pool wall surface is used as the back, and reliance obtains a back pad (60) on the waist -- ** Simultaneously, both elbows are carried on an arm pad (62), and a handle bar (64) is grasped with both hands.

[0136]Alternately with right and left, a knee is bent, and a leg is raised and taken down to this state. This operation is repeated. In order that lift may work to the body, load is reduced rather than repeating the above-mentioned operation ashore (above the floor level), but resistance of water becomes large, so that quick operation is carried out, and load also becomes large.

[0137]

[Effect of the Invention]Since the thick and heavy main part which does not need to use the weight which consists of metal and supports this is not required, either, if it is in the training apparatus of this invention, also when [which the weight of the whole equipment can be reduced, for example, assembles this] making it move at the time, it can carry out easily.

[0138]There is fun of ups and downs of float which was described above, he enjoys himself to a user, and ballottement is given. From a wave sound and a spray in case float bobs, the training apparatus of this invention has an active and bright image, and a user's training volition rises.

[Translation done.]

* NOTICES *

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a top view of the training apparatus in which one working example of this invention is shown.

[Drawing 2]It is a side view showing the busy condition of the training apparatus of a front figure.

[Drawing 3]It is a front view of the training apparatus which are other working examples.

[Drawing 4]It is a side view showing the busy condition of the training apparatus of a front figure.

[Drawing 5]It is a top view of the training apparatus which is an working example of further others.

[Drawing 6]It is a side view showing the busy condition of the training apparatus of a front figure.

[Drawing 7]It is a top view of the training apparatus which is an working example of further others.

[Drawing 8]It is a side view showing the busy condition of the training apparatus of a front figure.

[Drawing 9]It is a side view showing other busy conditions of the training apparatus of drawing 7.

[Drawing 10]It is a side view showing the busy condition of the training apparatus which is an working example of further others.

[Drawing 11]It is a front view of a front figure.

[Drawing 12]It is a side view showing the busy condition of the training apparatus which is an working example of further others.

[Drawing 13]It is a front view of a front figure.

[Drawing 14]It is a side view showing the busy condition of the training apparatus which is an working example of further others.

[Drawing 15]It is a side view showing other busy conditions of the training apparatus shown in a front figure.

[Drawing 16]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 17]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 18]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 19]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 20]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 21]It is a perspective view of the training apparatus which is an working example of further others.

[Drawing 22]It is a side view showing a reference example.

[Drawing 23]It is a top view of a front figure.

[Drawing 24]It is a side view showing other reference examples.

[Explanations of letters or numerals]

T Training apparatus

10 Float

12 Chair

13 Device main frame

16 A handle part, a pedal part, shoulder pat part

18 Supporting spindle

22 (the 1st) Pulley

24 The 2nd pulley

26 Coupling frame

- 30 Vertical lever
- 32 Control lever
- 38 Follower lever
- 40 Base material
- 44 Principal axis
- 48 Supporting spindle for main floats

[Translation done.]

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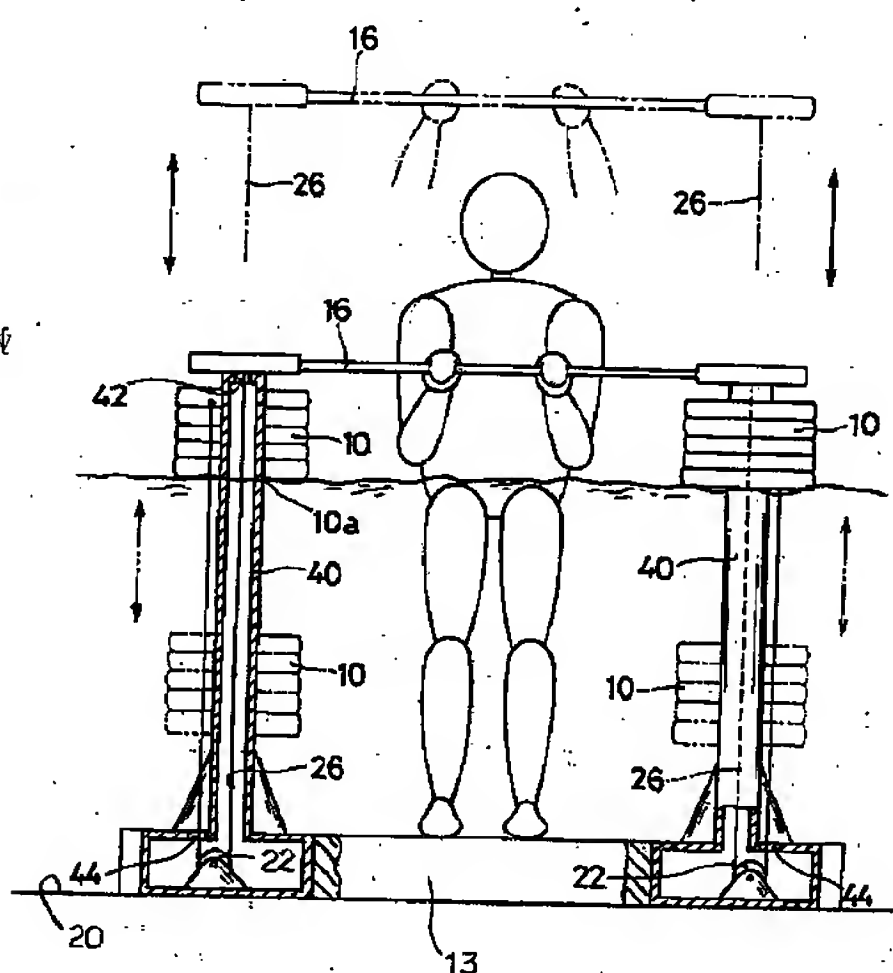
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(54) 【発明の名称】 トレーニング装置

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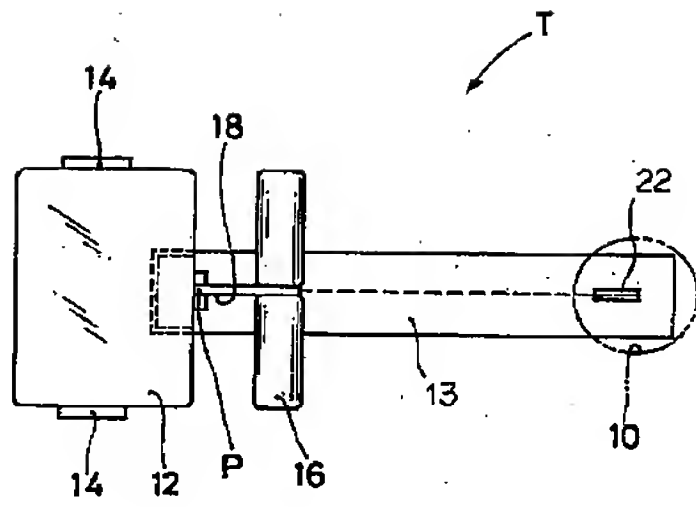
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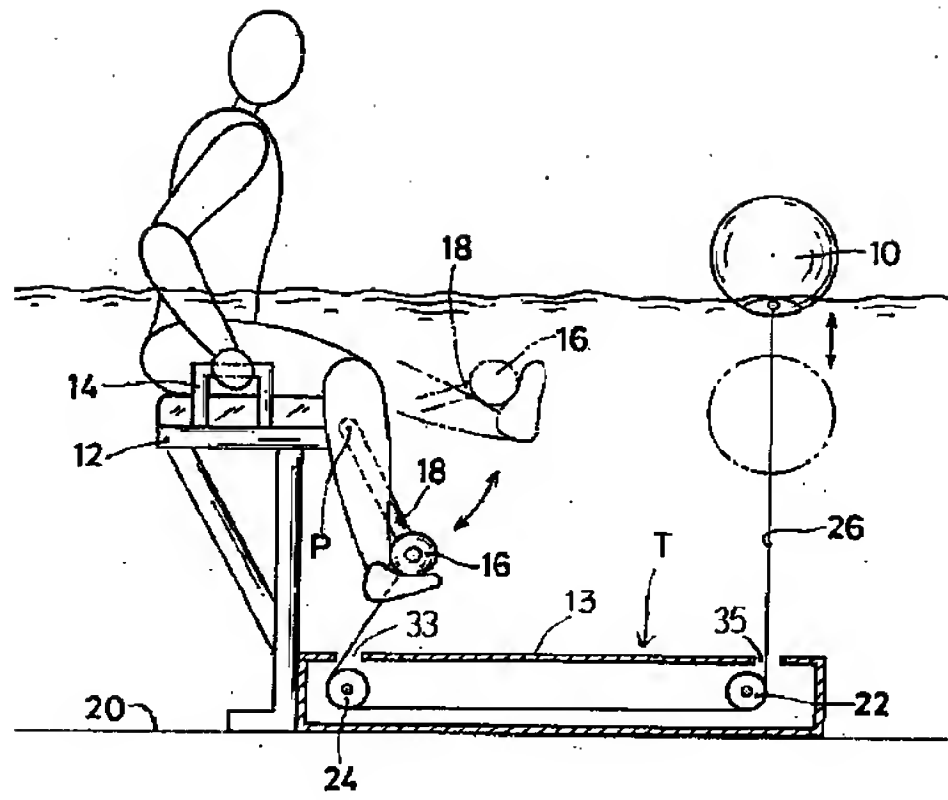
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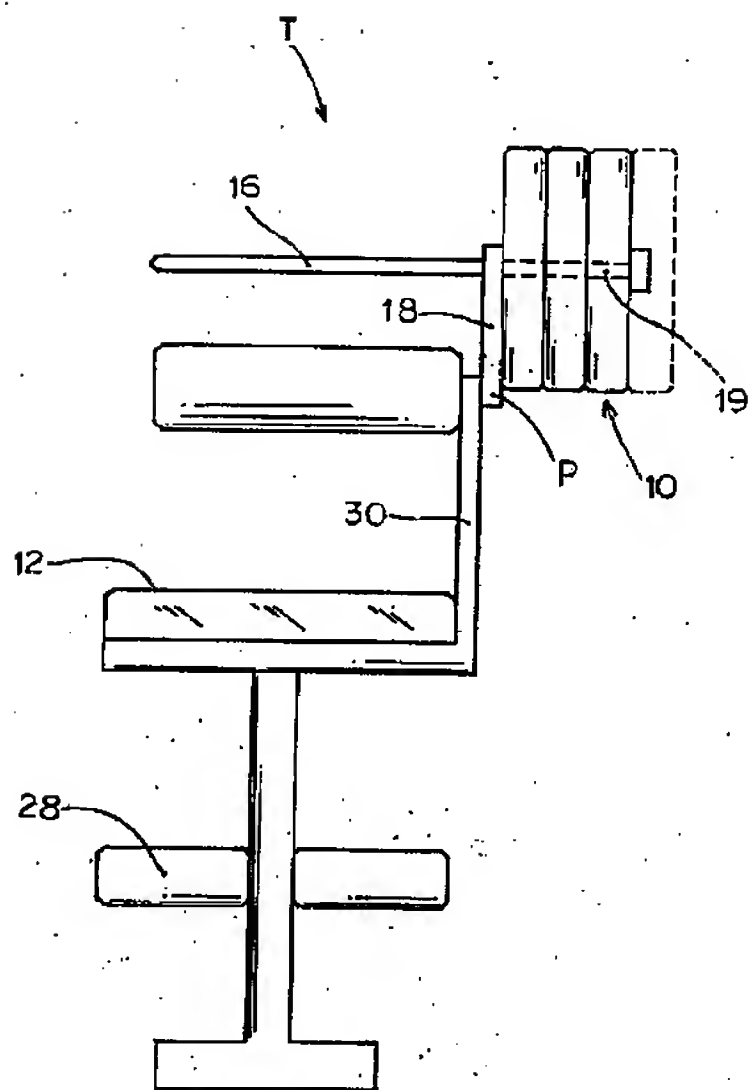
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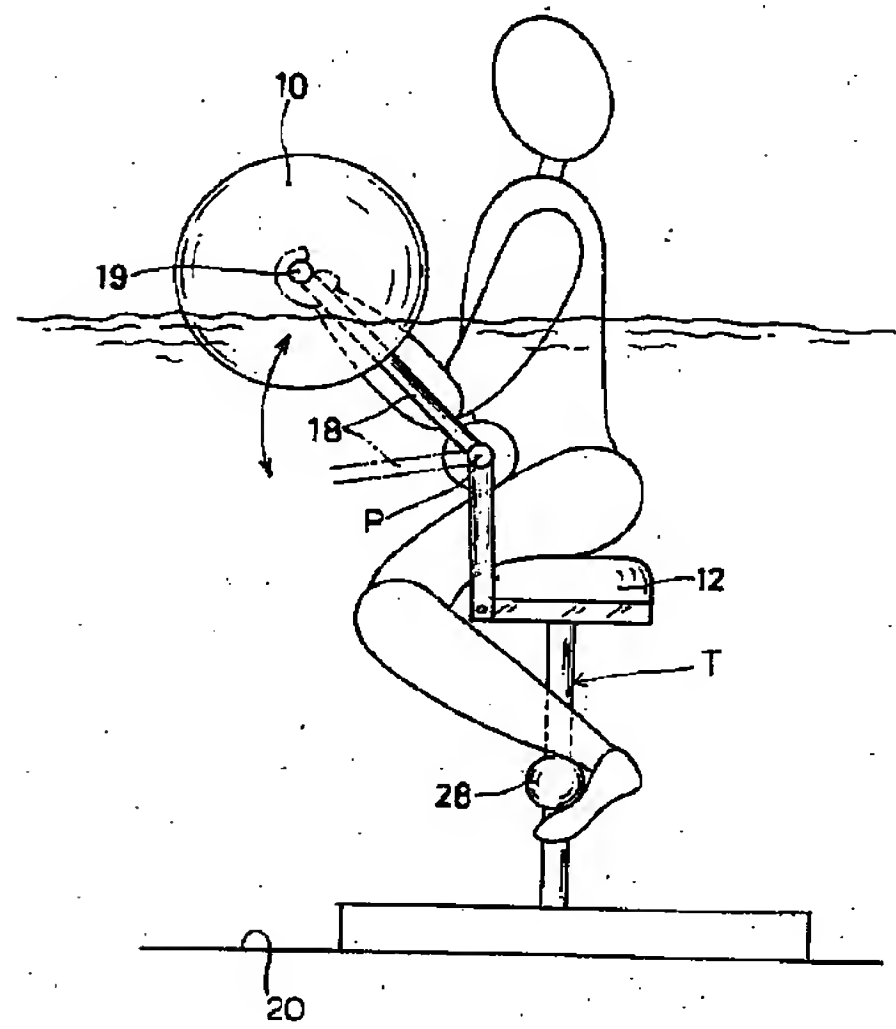
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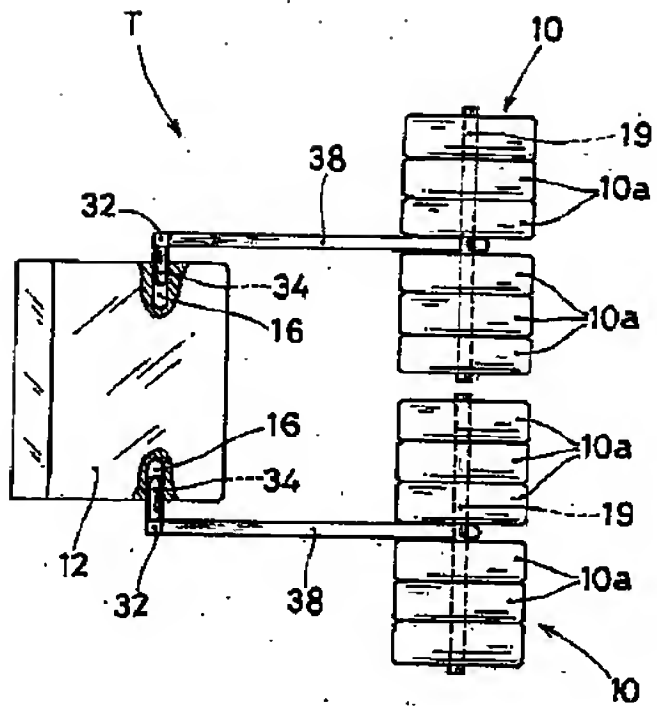
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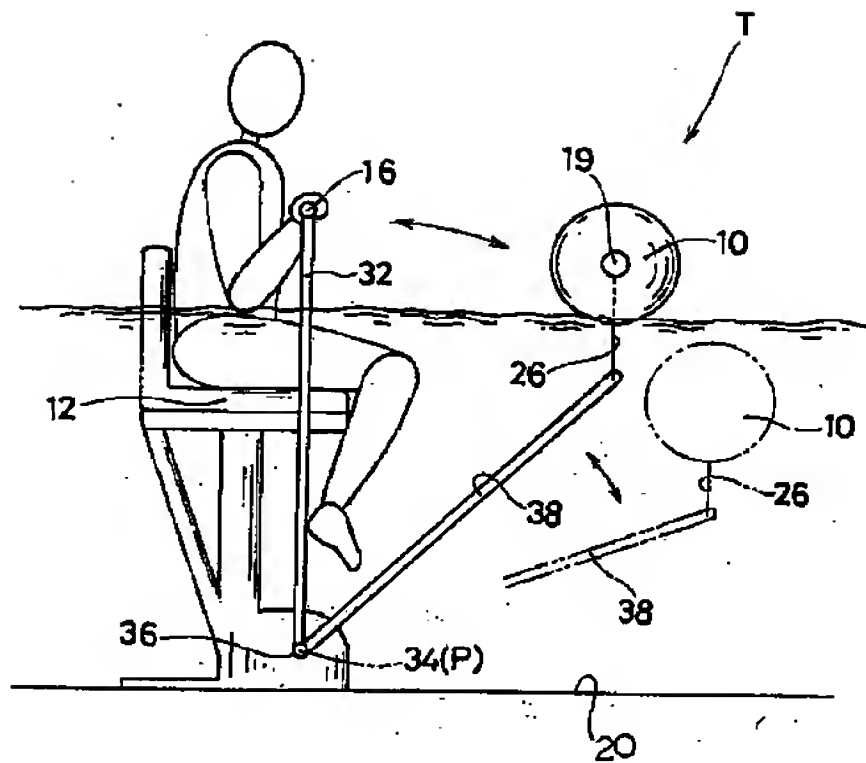
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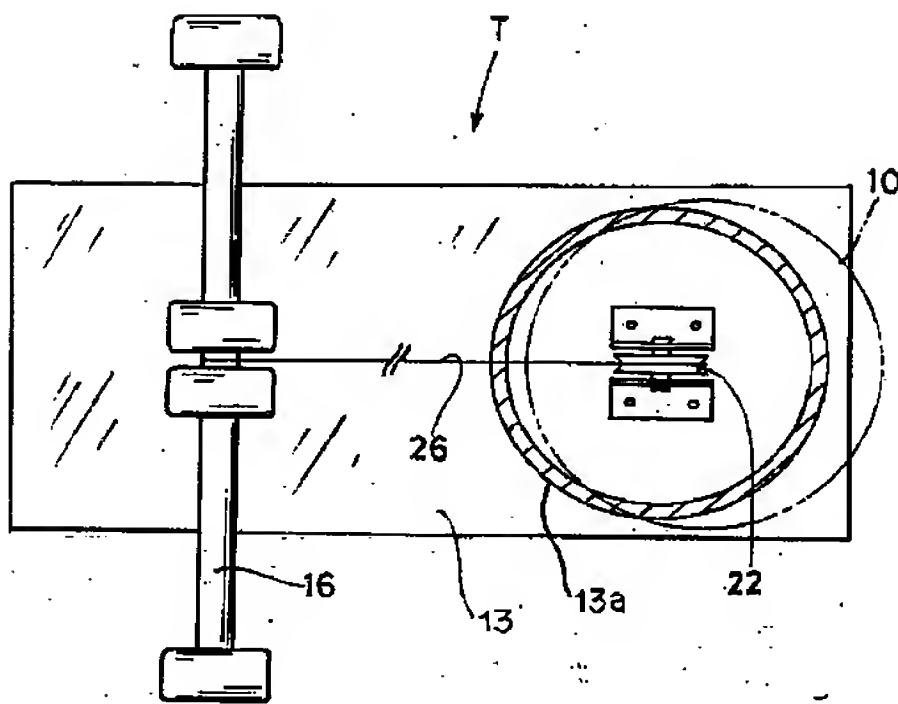
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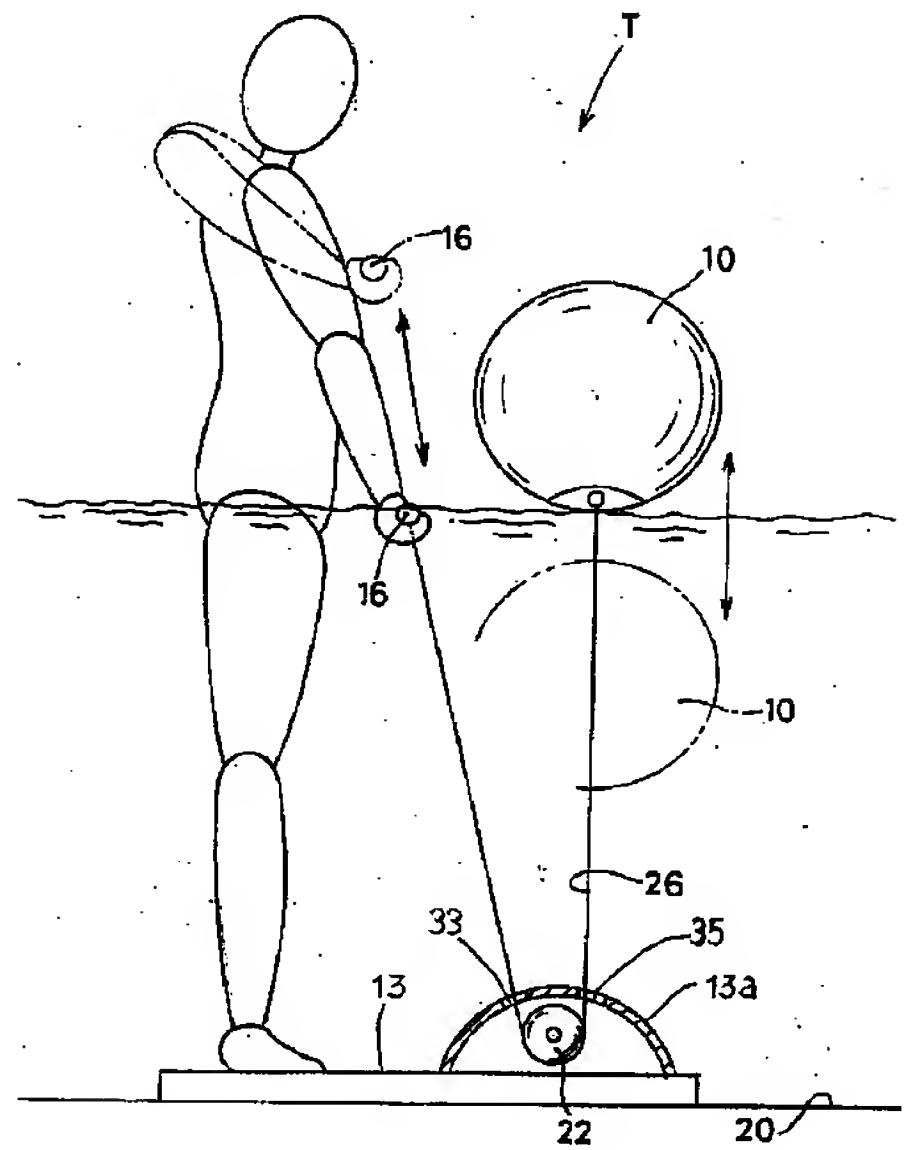
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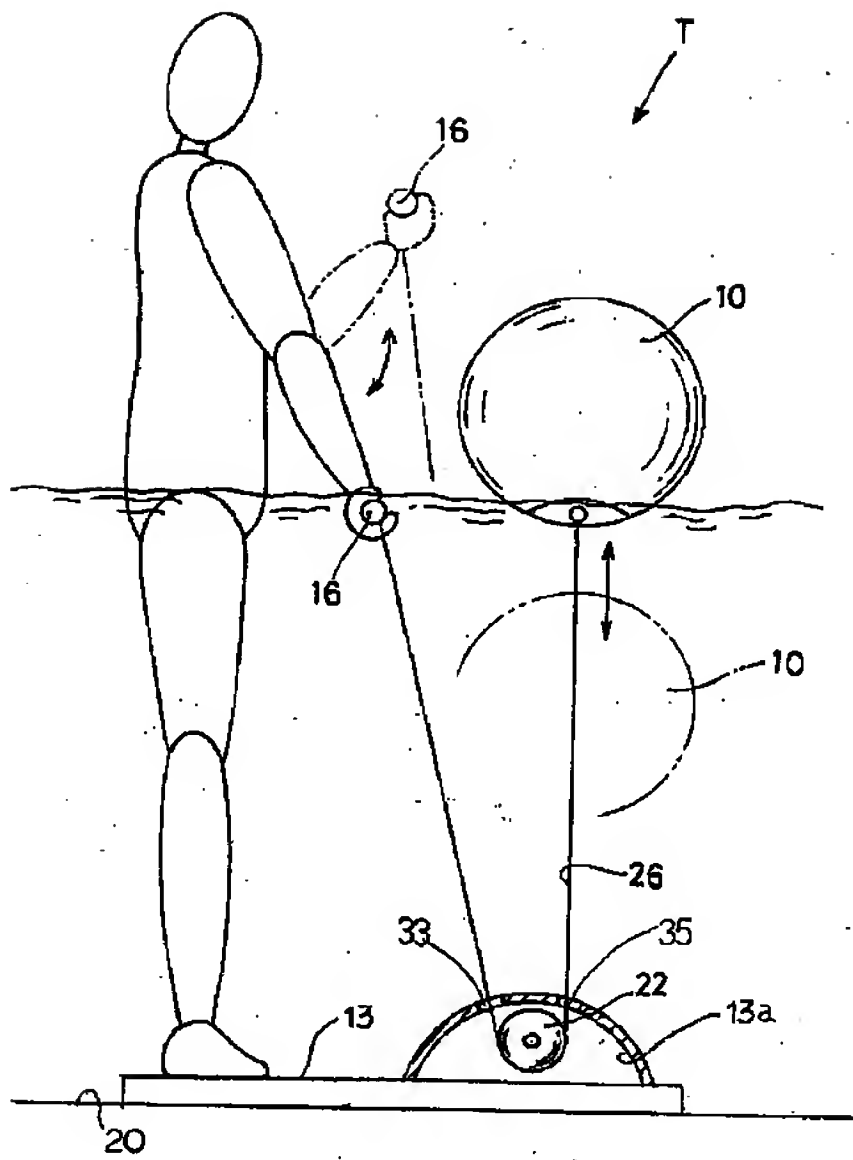
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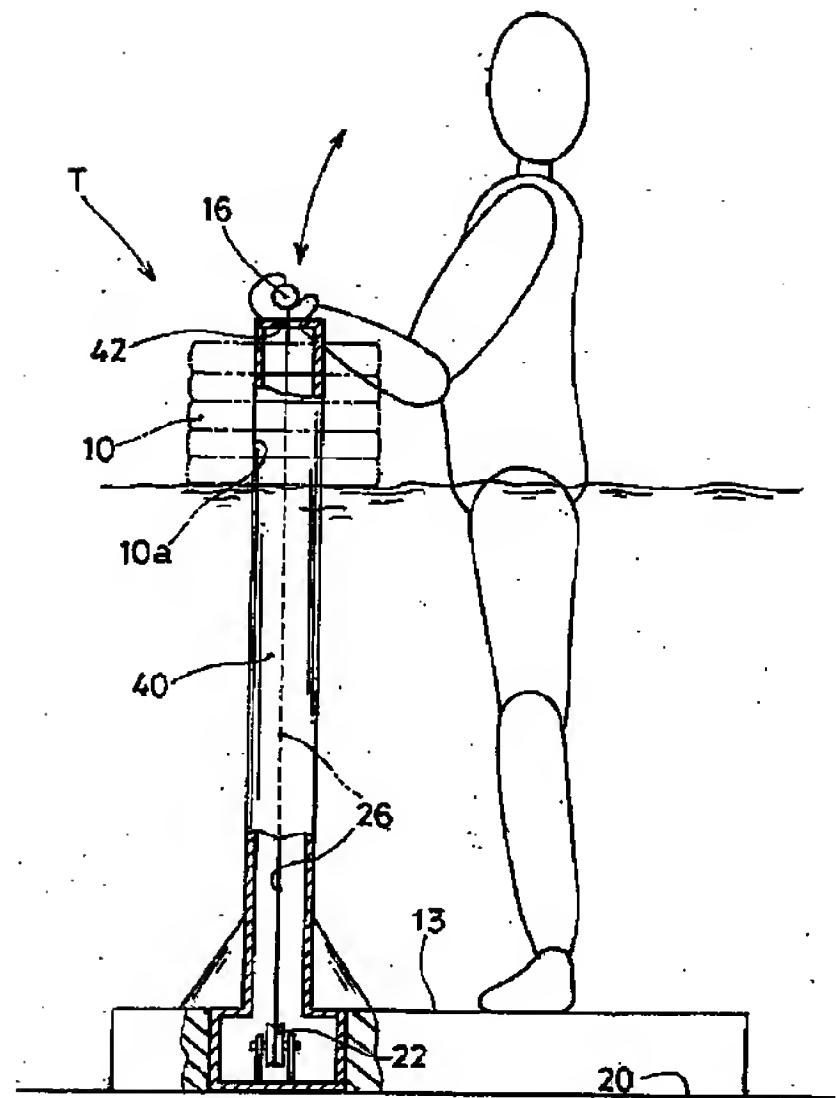
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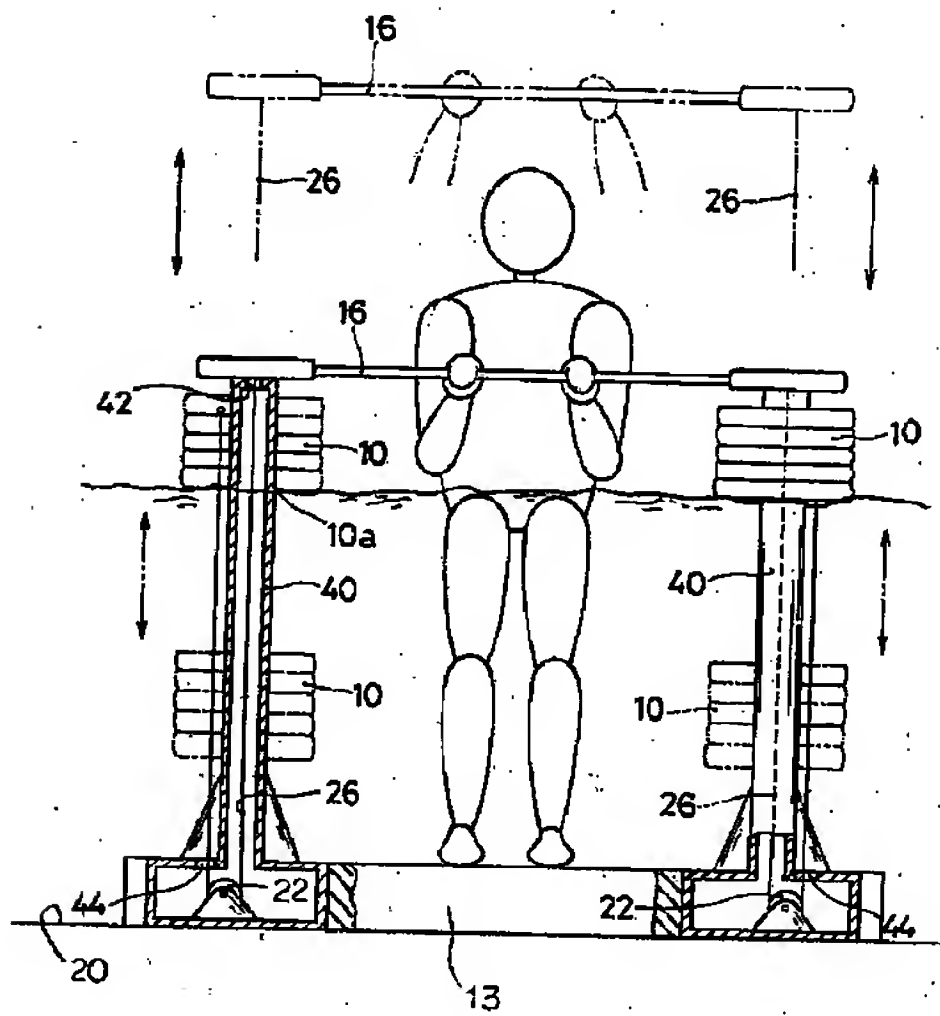
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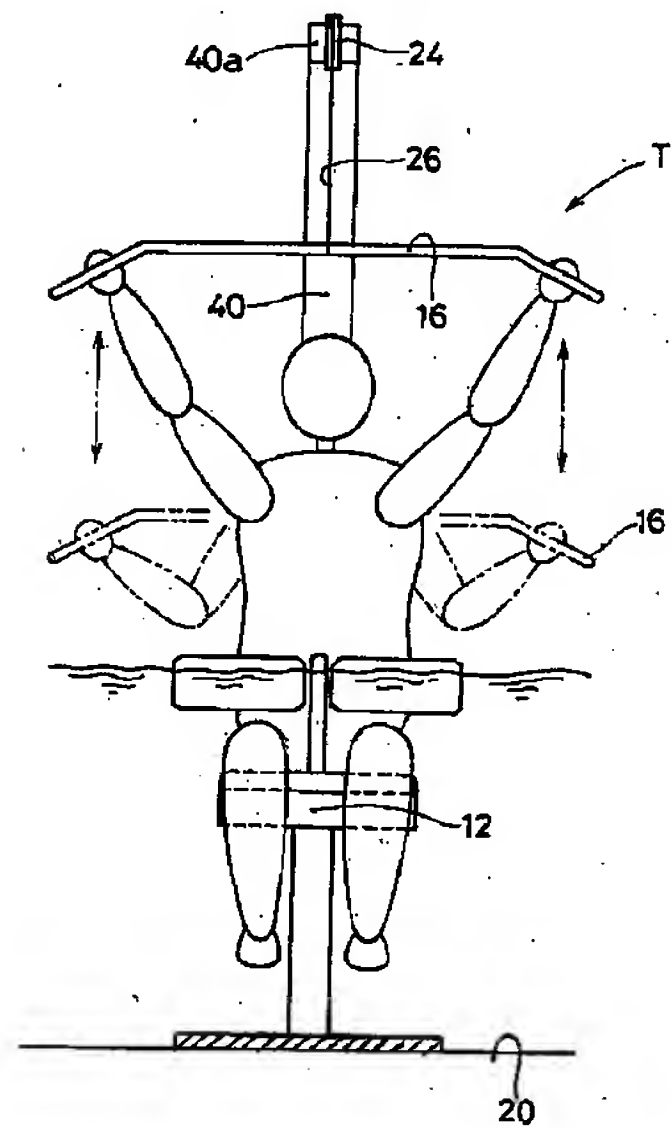
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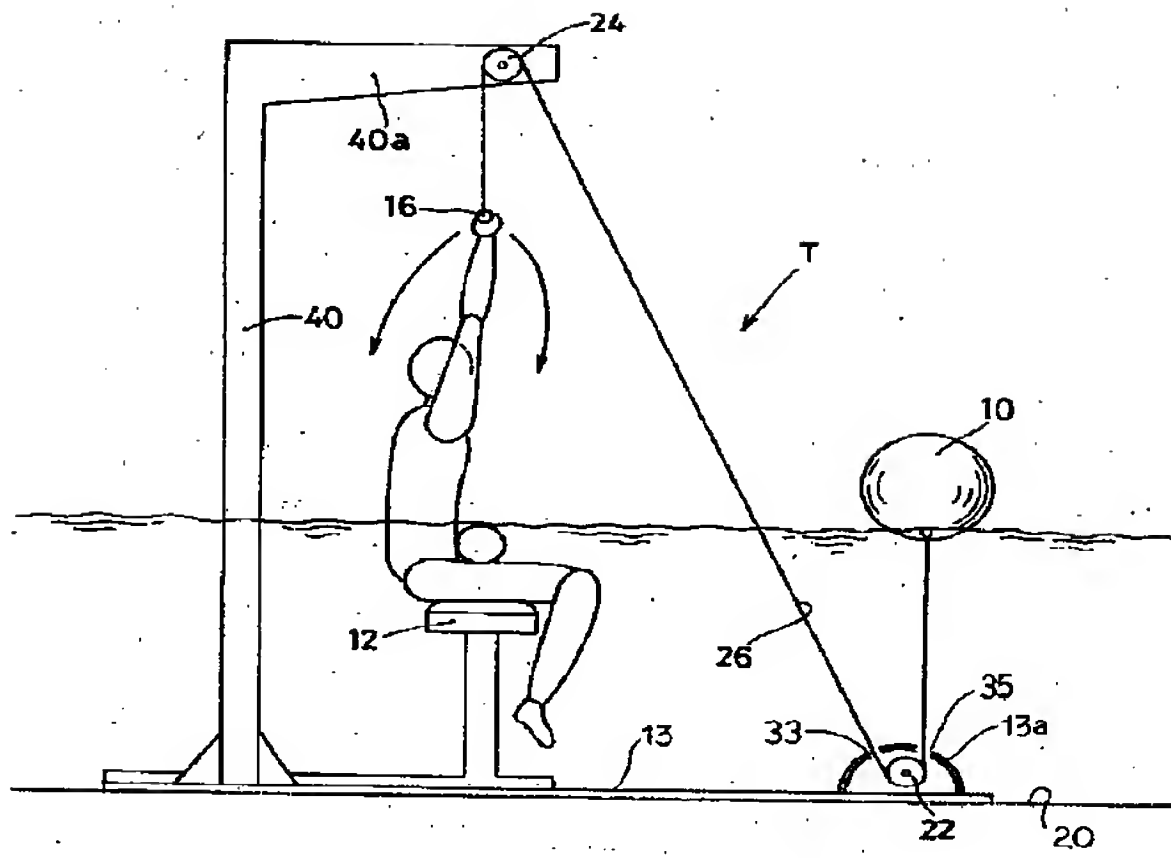
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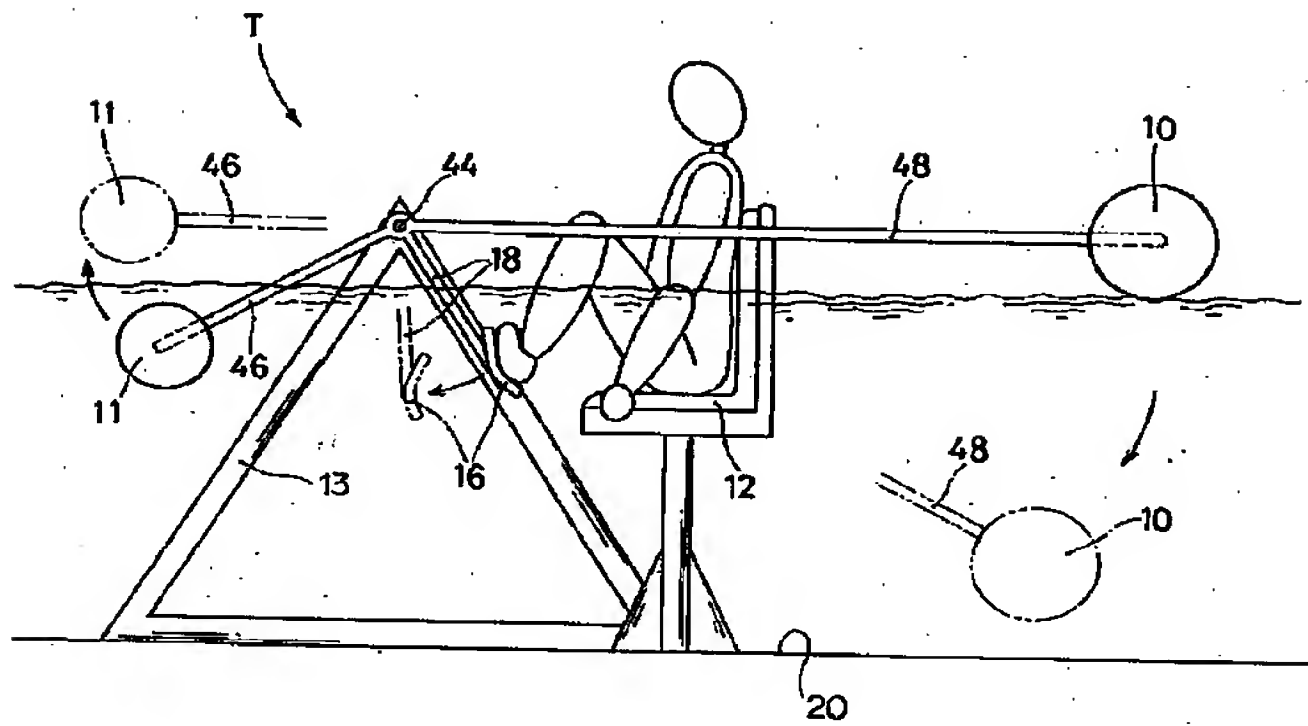
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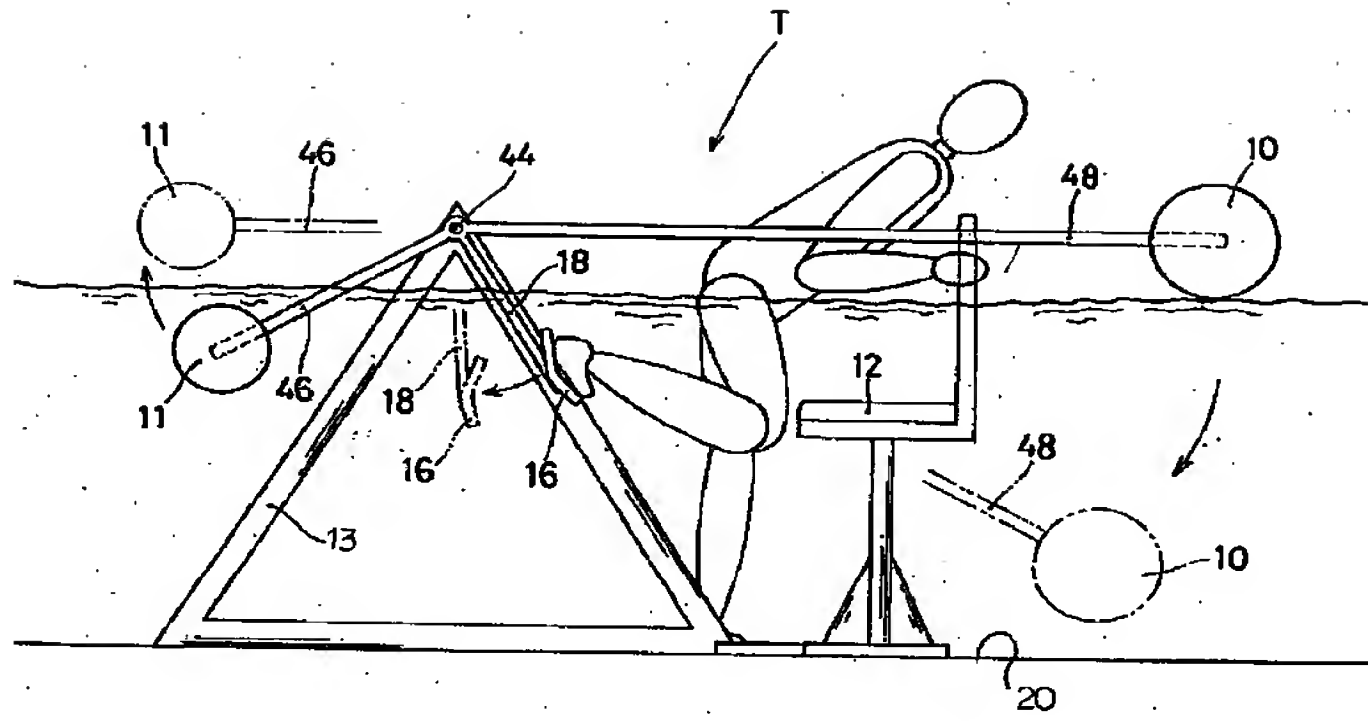
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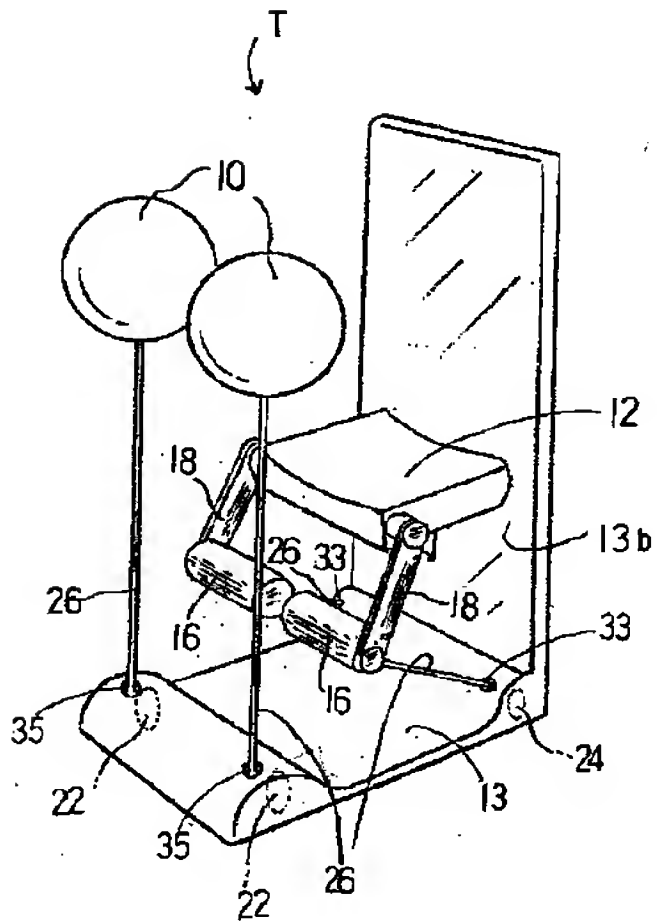
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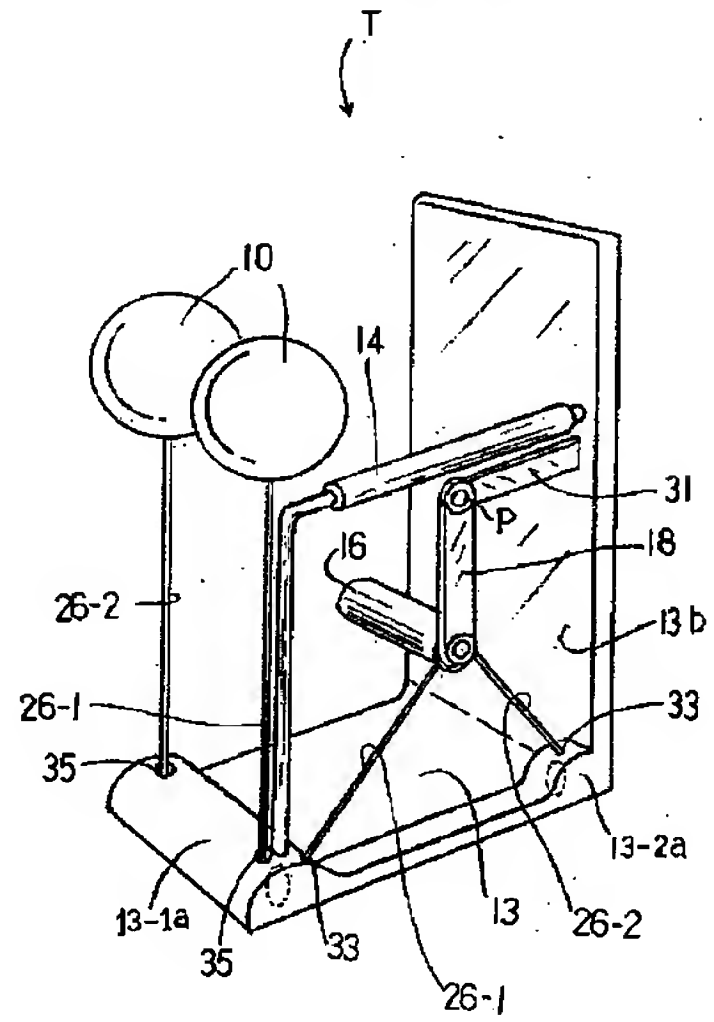
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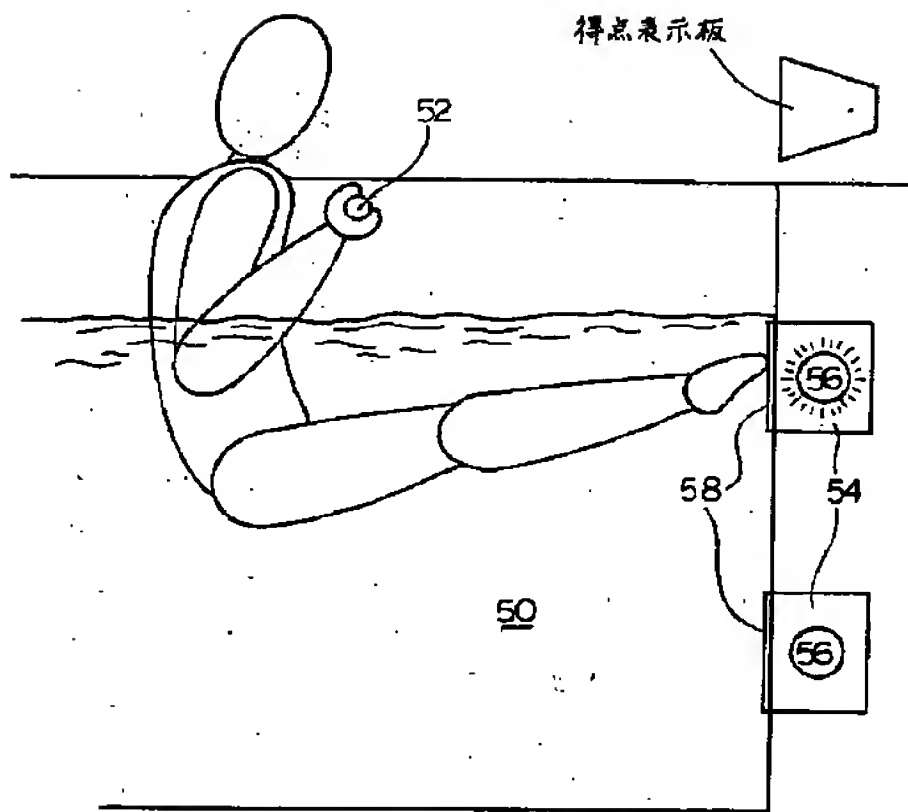
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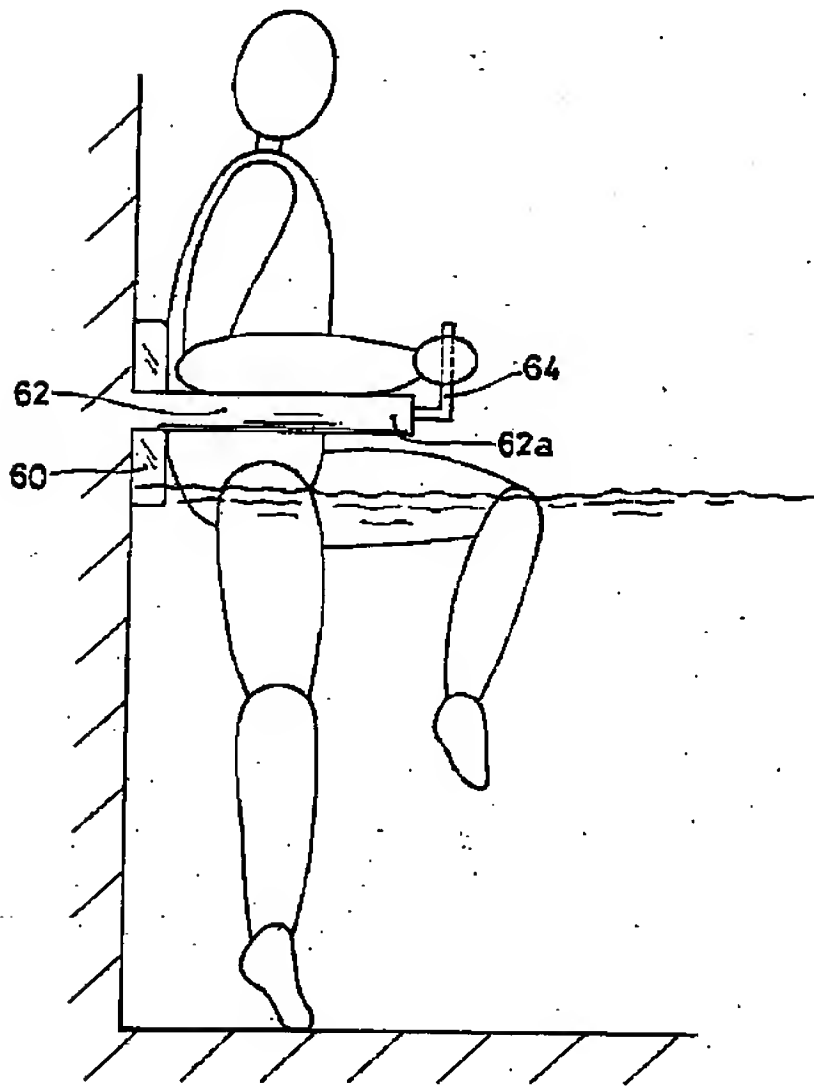
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y } Q



y } Q



y } Q

